JONES & LAUGHLIN STEEL CORP. *v.* PFEIFER

CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

No. 82–131. Argued February 28, 1983—Decided June 15, 1983

Respondent was injured in the course of his employment while employed by petitioner as a loading helper on petitioner's coal barge in Pennsylvania. The injury made respondent permanently unable to return to his job or to perform other than light work. Respondent brought an action in Federal District Court against petitioner, alleging that his injury had been "caused by the negligence of the vessel" within the meaning of § 5(b) of the Longshoremen's and Harbor Workers' Compensation Act (LHWCA). The District Court found in respondent's favor and awarded damages of $275,881.31, holding that receipt of compensation from petitioner under § 4 of the LHWCA did not bar a separate recovery of damages for negligence. In calculating the damages, the court did not increase the award to take inflation into account nor did it discount the award to reflect the present value of the future stream of income. Instead, the court followed a decision of the Pennsylvania Supreme Court, which had held "as a matter of law that future inflation shall be presumed equal to future interest rates with these factors offsetting." The Court of Appeals affirmed.

Held:

1. A longshoreman may bring a negligence action under § 5(b) against the owner of a vessel who acts as his own stevedore, even though the longshoreman has received compensation from the owner-employer under § 4. The plain language of § 5(a), which provides that the liability of an employer for compensation prescribed in § 4 "shall be exclusive and in place of all other liability of such an employer to the employee," appears to support petitioner's contention that since, as respondent's employer, it had paid compensation to him under § 4, § 5(a) absolves it of all other responsibility to respondent for damages. But such contention is undermined by the plain language of § 5(b), which authorizes a longshoreman whose injury is caused by the negligence of a vessel to bring a separate action against such a vessel as a third party, unless the injury was caused by the negligence of persons engaged in providing stevedoring services to the vessel. If § 5(a) had been intended to bar all negligence suits against owner-employers, there would have been no need to put an additional sentence in § 5(b) barring suits against owner-

employers for injuries caused by fellow servants. And the history of the LHWCA further refutes the contention that § 5(a) bars respondent's suit under § 5(b). Pp. 528–532.

2. The District Court, in performing its damages calculation, erred in applying the theory of the Pennsylvania decision as a mandatory federal rule of decision. Pp. 533–553.

(a) The two elements that determine the calculation of a damages award to a permanently injured employee in an inflation-free economy are the amount that the employee would have earned during each year that he could have been expected to work after the injury, and the appropriate discount rate, reflecting the safest available investment. Pp. 533–538.

(b) In an inflationary economy, inflation should ideally affect both stages of the calculation described above. This Court, however, will not at this time select one of the many rules proposed by the litigants and *amici* in this case and establish it for all time as the exclusive method in all federal courts for calculating an award for lost earnings in an inflationary economy. First, by its very nature the calculation of an award for lost earnings must be a rough approximation. Second, sustained price inflation can make the award substantially less precise. And third, the question of lost earnings can arise in many different contexts. Pp. 538–547.

(c) Respondent's cause of action is rooted in federal maritime law, and thus the fact that Pennsylvania has adopted the total offset rule for all negligence cases in that forum is not of controlling importance in this case. Moreover, the reasons that may support the adoption of the rule for a State's entire judicial system are not necessarily applicable to the special class of workers covered by the LHWCA. P. 547.

(d) In calculating an award for a longshoreman's lost earnings caused by a vessel's negligence, the discount rate should be chosen on the basis of the factors that are used to estimate the lost stream of future earnings. If the trier of fact relies on a specific forecast of the future rate of price inflation, and if the estimated lost stream of future earnings is calculated to include price inflation along with individual factors and other societal factors, then the proper discount rate would be the after-tax market interest rate. But since specific forecasts of future price inflation remain too unreliable to be useful in many cases, it will normally be a costly and ultimately unproductive waste of longshoremen's resources to make such forecasts the centerpiece of litigation under § 5(b). On the other hand, if forecasts of future price inflation are not used, it is necessary to choose an appropriate below-market discount rate. As long as inflation continues, the amount of the "offset" against the market rate should be chosen on the basis of the same factors that are used to estimate the lost stream of future earnings. If full account is taken of the individual and societal factors (excepting price inflation) that can be expected to have resulted in wage increases, then all that should be set off against the market interest rate is an estimate of future price inflation. Pp. 547–549.

(e) On remand, whatever rate the District Court may choose to discount the estimated stream of future earnings, it must make a deliberate choice, rather than assuming that it is bound by a rule of state law. Pp. 552–553.

678 F. 2d 453, vacated and remanded.

STEVENS, J., delivered the opinion for a unanimous Court.

Robert W. Murdoch argued the cause for petitioner. With him on the brief was *Daniel R. Minnick.*

Jerome M. Libenson argued the cause and filed a brief for respondent.*

JUSTICE STEVENS delivered the opinion of the Court.

Respondent was injured in the course of his employment as a loading helper on a coal barge. As his employer, petitioner was required to compensate him for his injury under § 4 of the Longshoremen's and Harbor Workers' Compensation Act (Act). 44 Stat. 1426, 33 U. S. C. § 904. As the owner *pro hac vice* of the barge, petitioner may also be liable for negligence under § 5 of the Act. 86 Stat. 1263, 33 U. S. C. § 905. We granted certiorari to decide whether petitioner may be subject to both forms of liability, and also to consider whether the Court of Appeals correctly upheld the trial court's computation of respondent's damages. 459 U. S. 821 (1982).

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*Briefs of *amici curiae* urging reversal were filed by *Solicitor General Lee, Assistant Attorney General McGrath, Deputy Solicitor General Geller, Richard G. Wilkins,* and *Jeffrey Axelrad* for the United States; by *John T. Biezup, Michael D. Brophy,* and *E. D. Vickery* for Alcoa Steamship Co. et al.; and by *Robert C. Wert* and *Norman Hegge, Jr.,* for the Southeastern Pennsylvania Transportation Authority.

Raymond J. Conboy filed a brief for the International Longshoremen's and Warehousemen's Union as *amicus curiae.*

Petitioner owns a fleet of barges that it regularly operates on three navigable rivers in the vicinity of Pittsburgh, Pa. Respondent was employed for 19 years to aid in loading and unloading those barges at one of petitioner's plants located on the shore of the Monongahela River. On January 13, 1978, while carrying a heavy pump, respondent slipped and fell on snow and ice that petitioner had negligently failed to remove from the gunnels of a barge. His injury made him permanently unable to return to his job with the petitioner, or to perform anything other than light work after July 1, 1979.

In November 1979, respondent brought this action against petitioner, alleging that his injury had been "caused by the negligence of the vessel" within the meaning of § 5(b) of the Act. The District Court found in favor of respondent and awarded damages of $275,881.36. The court held that receipt of compensation payments from petitioner under § 4 of the Act did not bar a separate recovery of damages for negligence.

The District Court's calculation of damages was predicated on a few undisputed facts. At the time of his injury respondent was earning an annual wage of $26,025. He had a remaining work expectancy of 12½ years. On the date of trial (October 1, 1980), respondent had received compensation payments of $33,079.14. If he had obtained light work and earned the legal minimum hourly wage from July 1, 1979, until his 65th birthday, he would have earned $66,352.

The District Court arrived at its final award by taking 12½ years of earnings at respondent's wage at the time of injury ($325,312.50), subtracting his projected hypothetical earnings at the minimum wage ($66,352) and the compensation payments he had received under § 4 ($33,079.14), and adding $50,000 for pain and suffering. The court did not increase the award to take inflation into account, and it did not discount the award to reflect the present value of the future stream of income. The court instead decided to follow a decision of the Supreme Court of Pennsylvania, which had held "as a matter of law that future inflation shall be presumed equal to future interest rates with these factors offsetting." *Kaczkowski* v. *Bolubasz*, 491 Pa. 561, 583, 421 A. 2d 1027, 1038–1039 (1980). Thus, although the District Court did not dispute that respondent could be expected to receive regular cost-of-living wage increases from the date of his injury until his presumed date of retirement, the court refused to include such increases in its calculation, explaining that they would provide respondent "a double consideration for inflation." App. to Pet. for Cert. 41a. For comparable reasons, the court disregarded changes in the legal minimum wage in computing the amount of mitigation attributable to respondent's ability to perform light work.

It does not appear that either party offered any expert testimony concerning predicted future rates of inflation, the interest rate that could be appropriately used to discount future earnings to present value, or the possible connection between inflation rates and interest rates. Respondent did, however, offer an estimate of how his own wages would have increased over time, based upon recent increases in the company's hourly wage scale.

The Court of Appeals affirmed. 678 F. 2d 453 (CA3 1982). It held that a longshoreman may bring a negligence action against the owner of a vessel who acts as its own stevedore, relying on its prior decision in *Griffith* v. *Wheeling Pittsburgh Steel Corp.*, 521 F. 2d 31, 38–44 (1975), cert. denied, 423 U. S. 1054 (1976). On the damages issue, the Court of Appeals first noted that even though the District Court had relied on a Pennsylvania case, federal law controlled. The Court of Appeals next held that in defining the content of that law, inflation must be taken into account:

> "Full compensation for lost prospective earnings is most difficult, if not impossible, to attain if the court is blind to the realities of the consumer price index and the recent historical decline of purchasing power. Thus if we recognize, as we must, that the injured worker is

entitled to reimbursement for his loss of future earnings, an honest and accurate calculation must consider the stark reality of inflationary conditions." 678 F. 2d, at 460–461.[1]

The court understood, however, that the task of predicting future rates of inflation is quite speculative. It concluded that such speculation could properly be avoided in the manner chosen by the District Court—by adopting Pennsylvania's "total offset method" of computing damages. The Court of Appeals approved of the way the total offset method respects the twin goals of considering future inflation and discounting to present value, while eliminating the need to make any calculations about either, "because the inflation and discount rates are legally presumed to be equal and cancel one another." *Id.*, at 461. Accordingly, it affirmed the District Court's judgment.

The Liability Issue

Most longshoremen who load and unload ships are employed by independent stevedores, who have contracted with the vessel owners to provide such services. In this case, however, the respondent longshoreman was employed directly by the petitioner vessel owner. Under § 4 of the Act, a longshoreman who is injured in the course of his employment is entitled to a specified amount of compensation from

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[1] The court drew support for that conclusion from the recent Pennsylvania case, *Kaczkowski* v. *Bolubasz*, 491 Pa. 561, 421 A. 2d 1027 (1980), a venerable Vermont case, *Halloran* v. *New England Telephone & Telegraph Co.*, 95 Vt. 273, 274, 115 A. 143, 144 (1921), and a few federal decisions. *McWeeney* v. *New York, N. H. & H. R. Co.*, 282 F. 2d 34, 38 (CA2) (en banc), cert. denied, 364 U. S. 870 (1960); *Yodice* v. *Koninklijke Nederlandsche Stoomboot Maatschappij*, 443 F. 2d 76, 79 (CA2 1971); *Doca* v. *Marina Mercante Nicaraguense, S.A.*, 634 F. 2d 30, 36 (CA2 1980), cert. denied, 451 U. S. 971 (1981); *Steckler* v. *United States*, 549 F. 2d 1372, 1375–1378 (CA10 1977); *Freeport Sulphur Co.* v. *S/S Hermosa*, 526 F. 2d 300, 308–311 (CA5 1976) (Wisdom, J., concurring); *United States* v. *English*, 521 F. 2d 63, 72–76 (CA9 1975).

his employer, whether or not the injury was caused by the employer's negligence.[2] Section 5(a) of the Act appears to make that liability exclusive.[3] It reads: "The liability of an

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[2] Section 4 of the Act provides:

"(a) Every employer shall be liable for and shall secure the payment to his employees of the compensation payable under sections 7, 8, and 9. In the case of an employer who is a subcontractor, the contractor shall be liable for and shall secure the payment of such compensation to employees of the subcontractor unless the subcontractor has secured such payment.

"(b) Compensation shall be payable irrespective of fault as a cause for the injury." 44 Stat. 1426, 33 U. S. C. § 904.

[3] The full text of § 5 of the Act reads as follows:

"(a) The liability of an employer prescribed in section 4 shall be exclusive and in place of all other liability of such employer to the employee, his legal representative, husband or wife, parents, dependents, next of kin, and anyone otherwise entitled to recover damages from such employer at law or in admiralty on account of such injury or death, except that if an employer fails to secure payment of compensation as required by this Act, an injured employee, or his legal representative in case death results from the injury, may elect to claim compensation under the Act, or to maintain an action at law or in admiralty for damages on account of such injury or death. In such action the defendant may not plead as a defense that the injury was caused by the negligence of a fellow servant, or that the employee assumed the risk of his employment, or that the injury was due to the contributory negligence of the employee.

"(b) In the event of injury to a person covered under this Act caused by the negligence of a vessel, then such person, or anyone otherwise entitled to recover damages by reason thereof, may bring an action against such vessel as a third party in accordance with the provisions of section 33 of this Act, and the employer shall not be liable to the vessel for such damages directly or indirectly and any agreements or warranties to the contrary shall be void. If such person was employed by the vessel to provide stevedoring services, no such action shall be permitted if the injury was caused by the negligence of persons engaged in providing stevedoring services to the vessel. If such person was employed by the vessel to provide ship building or repair services, no such action shall be permitted if the injury was caused by the negligence of persons engaged in providing ship building or repair services to the vessel. The liability of the vessel under this subsection shall not be based upon the warranty of seaworthiness or a breach thereof at the time the injury occurred. The remedy provided in this subsection shall be exclusive of all other remedies against the employer prescribed in section 4 [of this Act] shall be exclusive and in place of all other liability of such employer to the employee . . . ." 44 Stat. 1426, 33 U. S. C. § 905(a). Since the petitioner was the respondent's employer and paid him benefits pursuant to § 4 of the Act, it contends that § 5(a) absolves it of all other responsibility for damages.

Although petitioner's contention is, indeed, supported by the plain language of § 5(a), it is undermined by the plain language of § 5(b). The first sentence of § 5(b) authorizes a longshoreman whose injury is caused by the negligence of a vessel[4] to bring a separate action against such a vessel as a third party. Thus, in the typical tripartite situation, the longshoreman is not only guaranteed the statutory compensation from his employer; he may also recover tort damages if he can prove negligence by the vessel.[5] The second sentence of § 5(b) makes it clear that such a separate action is authorized against the vessel even when there is no independent stevedore and the longshoreman is employed directly by the vessel owner. That sentence provides: "If such person was employed by the vessel to provide stevedoring services, no such action shall be permitted if the injury was caused by the negligence of persons engaged in providing stevedoring services to the vessel." If § 5(a) had been intended to bar all negligence suits against owner-employers, there would have been no need to put an additional sentence

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vessel except remedies available under this Act." 86 Stat. 1263, 33 U. S. C. § 905.

[4] "The term 'vessel' means any vessel upon which or in connection with which any person entitled to benefits under this Act suffers injury or death arising out of or in the course of his employment, and said vessel's owner, owner pro hac vice, agent, operator, charter or bare boat charterer, master, officer, or crew member." 86 Stat. 1263, 33 U. S. C. § 902(21).

[5] The longshoreman cannot receive a double recovery, because the stevedore, by paying him statutory compensation, acquires a lien in that amount against any recovery the longshoreman may obtain from the vessel. See *Edmonds* v. *Compagnie Generale Transatlantique*, 443 U. S. 256, 269–270 (1979).

in § 5(b) barring suits against owner-employers for injuries caused by fellow servants.[6]

The history of the Act further refutes petitioner's contention that § 5(a) of the Act bars respondent's suit under § 5(b). Prior to 1972, this Court had construed the Act to authorize a longshoreman employed directly by the vessel to obtain a recovery from his employer in excess of the statutory schedule, even though § 5 of the Act contained the same exclusive liability language as today. *Reed* v. *The Yaka*, 373 U. S. 410 (1963); *Jackson* v. *Lykes Brothers S.S. Co.*, 386 U. S. 731 (1967). Although the 1972 Amendments changed the character of the longshoreman's action against the vessel by substituting negligence for unseaworthiness as the basis for liability,[7] Congress clearly intended to preserve the rights of longshoremen employed by the vessel to maintain such an action. The House Committee Report is unambiguous:

> "The Committee has also recognized the need for special provisions to deal with a case where a longshoreman or shipbuilder or repairman is employed directly by the vessel. In such case, notwithstanding the fact that the

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[6] Of course, § 5(b) does make it clear that a vessel owner acting as its own stevedore is liable only for negligence in its "owner" capacity, not for negligence in its "stevedore" capacity.

[7] Until 1972, a longshoreman could supplement his statutory compensation and obtain a tort recovery from the vessel merely by proving that his injury was caused by an "unseaworthy" condition, *Seas Shipping Co.* v. *Sieracki*, 328 U. S. 85 (1946), even if the condition was not attributable to negligence by the owner, *Mitchell* v. *Trawler Racer, Inc.*, 362 U. S. 539, 549–550 (1960). And an owner held liable to the longshoreman in such a situation was permitted to recover from the longshoreman's stevedore-employer if he could prove that the stevedore's negligence caused the injury. *Ryan Stevedoring Co.* v. *Pan-Atlantic S.S. Corp.*, 350 U. S. 124 (1956). The net result, in many cases, was to make the stevedore absolutely liable for statutory compensation in all cases and to deny him protection from additional liability in the cases in which his negligence could be established. The 1972 Amendments protect the stevedore from a claim by the vessel and limit the longshoreman's recovery to statutory compensation unless he can prove negligence on the part of the vessel.

> vessel is the employer, the Supreme Court in *Reed* v. *S.S. Yaka*, 373 U. S. 410 (1963) and *Jackson* v. *Lykes Bros. Steamship Co.*, 386 U. S. 371 (1967), held that the unseaworthiness remedy is available to the injured employee. The Committee believes that the rights of an injured longshoreman or shipbuilder or repairman should not depend on whether he was employed directly by the vessel or by an independent contractor. . . . The Committee's intent is that the same principles should apply in determining liability of the vessel which employs its own longshoremen or shipbuilders or repairmen as apply when an independent contractor employs such persons." H. R. Rep. No. 92–1441, pp. 7–8 (1972).

In *Edmonds* v. *Compagnie Generale Transatlantique*, 443 U. S. 256, 266 (1979), we observed that under the post-1972 Act, "all longshoremen are to be treated the same whether their employer is an independent stevedore or a shipowner-stevedore and that all stevedores are to be treated the same whether they are independent or an arm of the shipowner itself." If respondent had been employed by an independent stevedore at the time of his injury, he would have had the right to maintain a tort action against the vessel. We hold today that he has the same right even though he was in fact employed by the vessel.

The Damages Issue

The District Court found that respondent was permanently disabled as a result of petitioner's negligence. He therefore was entitled to an award of damages to compensate him for his probable pecuniary loss over the duration of his career, reduced to its present value. It is useful at the outset to review the way in which damages should be measured in a hypothetical inflation-free economy. We shall then consider how price inflation alters the analysis. Finally, we shall decide whether the District Court committed reversible error in this case.

I

In calculating damages, it is assumed that if the injured party had not been disabled, he would have continued to work, and to receive wages at periodic intervals until retirement, disability, or death. An award for impaired earning capacity is intended to compensate the worker for the diminution in that stream of income.[8] The award could in theory take the form of periodic payments, but in this country it has traditionally taken the form of a lump sum, paid at the conclusion of the litigation.[9] The appropriate lump sum cannot be computed without first examining the stream of income it purports to replace.

The lost stream's length cannot be known with certainty; the worker could have been disabled or even killed in a different, non-work-related accident at any time. The probability that he would still be working at a given date is constantly diminishing.[10] Given the complexity of trying to make an

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[8] See generally D. Dobbs, Law of Remedies § 8.1 (1973). It should be noted that in a personal injury action such as this one, damages for impaired earning capacity are awarded to compensate the injured person for his loss. In a wrongful-death action, a similar but not identical item of damages is awarded for the manner in which diminished earning capacity harms either the worker's survivors or his estate. See generally 1 S. Speiser, Recovery for Wrongful Death 2d, ch. 3 (1975) (hereafter Speiser). Since the problem of incorporating inflation into the award is the same in both types of action, we shall make occasional reference to wrongful-death actions in this opinion.

[9] But cf. Uniform Periodic Payment of Judgments Act, 14 U. L. A. 22 (Supp. 1983). See generally Elligett, The Periodic Payment of Judgments, 46 Ins. Counsel J. 130 (1979); Kolbach, Variable Periodic Payments of Damages: An Alternative to Lump Sum Awards, 64 Iowa L. Rev. 138 (1978); Rea, Lump-Sum Versus Periodic Damage Awards, 10 J. Leg. Studies 131 (1981).

[10] For examples of calculations that take this diminishing probability into account, and assume that it would fall to zero when the worker reached age 65 see Fitzpatrick, The Personal Economic Loss Occasioned by the Death of Nancy Hollander Feldman: An Introduction to the Standard Valuation Procedure, 1977 Economic Expert in Litigation, No. 5, pp. 25, 44–46 (De-

exact calculation, litigants frequently follow the relatively simple course of assuming that the worker would have continued to work up until a specific date certain. In this case, for example, both parties agreed that the petitioner would have continued to work until age 65 (12½ more years) if he had not been injured.

Each annual installment [11] in the lost stream comprises several elements. The most significant is, of course, the actual wage. In addition, the worker may have enjoyed certain fringe benefits, which should be included in an ideal evaluation of the worker's loss but are frequently excluded for simplicity's sake.[12] On the other hand, the injured worker's lost wages would have been diminished by state and federal income taxes. Since the damages award is tax-free, the relevant stream is ideally of *after-tax* wages and benefits. See *Norfolk & Western R. Co.* v. *Liepelt*, 444 U. S. 490 (1980). Moreover, workers often incur unreimbursed costs, such as transportation to work and uniforms, that the injured worker will not incur. These costs should also be deducted in estimating the lost stream.

In this case the parties appear to have agreed to simplify the litigation, and to presume that in each installment all the elements in the stream would offset each other, except for gross wages. However, in attempting to estimate even such a stylized stream of annual installments of gross wages, a trier of fact faces a complex task. The most obvious and most appropriate place to begin is with the worker's annual wage at the time of injury. Yet the "estimate of the loss

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fense Research Institute, Inc.) (hereafter Fitzpatrick); Hanke, How To Determine Lost Earning Capacity, 27 Prac. Lawyer 27, 29–33 (July 15, 1981).

[11] Obviously, another distorting simplification is being made here. Although workers generally receive their wages in weekly or biweekly installments, virtually all calculations of lost earnings, including the one made in this case, pretend that the stream would have flowed in large spurts, taking the form of annual installments.

[12] These might include insurance coverage, pension and retirement plans, profit sharing, and in-kind services. Fitzpatrick 27.

from lessened earnings capacity in the future need not be based solely upon the wages which the plaintiff was earning at the time of his injury." C. McCormick, Damages § 86, p. 300 (1935). Even in an inflation-free economy—that is to say one in which the prices of consumer goods remain stable—a worker's wages tend to "inflate." This "real" wage inflation reflects a number of factors, some linked to the specific individual and some linked to broader societal forces.[13]

With the passage of time, an individual worker often becomes more valuable to his employer. His personal work experiences increase his hourly contributions to firm profits. To reflect that heightened value, he will often receive "seniority" or "experience" raises, "merit" raises, or even promotions.[14] Although it may be difficult to prove when, and whether, a particular injured worker might have received such wage increases, see *Feldman* v. *Allegheny Airlines, Inc.*, 524 F. 2d 384, 392–393 (CA2 1975) (Friendly, J., concurring *dubitante*), they may be reliably demonstrated for some workers.[15]

Furthermore, the wages of workers as a class may increase over time. See *Grunenthal* v. *Long Island R. Co.*, 393 U. S. 156, 160 (1968). Through more efficient interaction among labor, capital, and technology, industrial productivity may increase, and workers' wages may enjoy a share of that growth.[16] Such productivity increases—reflected in real in-

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[13] As will become apparent, in speaking of "societal" forces we are primarily concerned with those macroeconomic forces that influence wages in the worker's particular industry. The term will be used to encompass all forces that tend to inflate a worker's wage without regard to the worker's individual characteristics.

[14] It is also possible that a worker could be expected to change occupations completely. See, *e. g.*, *Stearns Coal & Lumber Co.* v. *Williams*, 164 Ky. 618, 176 S. W. 15 (1915).

[15] See, *e. g.*, Fitzpatrick 33–39; Henderson, Income Over the Life Cycle: Some Problems of Estimation and Measurement, 25 Federation Ins. Counsel Q. 15 (1974).

[16] P. Samuelson, Economics 738–756 (10th ed. 1976) (hereafter Samuelson).

creases in the gross national product per worker-hour—have been a permanent feature of the national economy since the conclusion of World War II.[17] Moreover, through collective bargaining, workers may be able to negotiate increases in their "share" of revenues, at the cost of reducing shareholders' rate of return on their investments.[18] Either of these forces could affect the lost stream of income in an inflation-free economy. In this case, the plaintiff's proffered evidence on predictable wage growth may have reflected the influence of either or both of these two factors.

To summarize, the first stage in calculating an appropriate award for lost earnings involves an estimate of what the lost stream of income would have been. The stream may be approximated as a series of after-tax payments, one in each year of the worker's expected remaining career. In estimating what those payments would have been in an inflation-free economy, the trier of fact may begin with the worker's annual wage at the time of injury. If sufficient proof is offered, the trier of fact may increase that figure to reflect the appropriate influence of individualized factors (such as foreseeable promotions) and societal factors (such as foreseeable productivity growth within the worker's industry).[19]

Of course, even in an inflation-free economy the award of damages to replace the lost stream of income cannot be computed simply by totaling up the sum of the periodic payments. For the damages award is paid in a lump sum at the conclusion of the litigation, and when it—or even a part of it—is invested, it will earn additional money. It has been

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[17] See Henderson, The Consideration of Increased Productivity and the Discounting of Future Earnings to Present Value, 20 S. D. L. Rev. 307, 310–320 (1975) (hereafter Henderson).

[18] See Samuelson 584–593, 737; Henderson 315, and n. 15.

[19] If foreseeable real wage growth is shown, it may produce a steadily increasing series of payments, with the first payment showing the least increase from the wage at the time of injury and the last payment showing the most.

settled since our decision in *Chesapeake & Ohio R. Co.* v. *Kelly*, 241 U. S. 485 (1916), that "in all cases where it is reasonable to suppose that interest may safely be earned upon the amount that is awarded, the ascertained future benefits ought to be discounted in the making up of the award." *Id.*, at 490.[20]

The discount rate should be based on the rate of interest that would be earned on "the best and safest investments." *Id.*, at 491. Once it is assumed that the injured worker would definitely have worked for a specific term of years, he is entitled to a risk-free stream of future income to replace his lost wages; therefore, the discount rate should not reflect the market's premium for investors who are willing to accept some risk of default. Moreover, since under *Norfolk & Western R. Co.* v. *Liepelt*, 444 U. S. 490 (1980), the lost stream of income should be estimated in after-tax terms, the discount rate should also represent the after-tax rate of return to the injured worker.[21]

Thus, although the notion of a damages award representing the present value of a lost stream of earnings in an inflation-free economy rests on some fairly sophisticated economic concepts, the two elements that determine its calculation can be stated fairly easily. They are: (1) the amount that the employee would have earned during each year that he could have been expected to work after the injury; and (2) the ap-

[20] Although this rule could be seen as a way of ensuring that the lump-sum award accurately represents the pecuniary injury as of the time of trial, it was explained by reference to the duty to mitigate damages. 241 U. S., at 489–490.

[21] The arithmetic necessary for discounting can be simplified through the use of a so-called "present value table," such as those found in R. Wixon, Accountants' Handbook 29.58–29.59 (4th ed. 1956), or 1 Speiser § 8:4, pp. 713–718. These tables are based on the proposition that if i is the discount rate, then "the present value of $1 due in n periods must be $\frac{1}{(1+i)^n}$." Wixon, *supra*, at 29.57. In this context, the relevant "periods" are years; accordingly, if i is a market interest rate, it should be the effective *annual* yield.

propriate discount rate, reflecting the safest available investment. The trier of fact should apply the discount rate to each of the estimated installments in the lost stream of income, and then add up the discounted installments to determine the total award.[22]

II

Unfortunately for triers of fact, ours is not an inflation-free economy. Inflation has been a permanent fixture in our economy for many decades, and there can be no doubt that it ideally should affect both stages of the calculation described in the previous section. The difficult problem is how it can do so in the practical context of civil litigation under § 5(b) of the Act.

The first stage of the calculation required an estimate of the shape of the lost stream of future income. For many workers, including respondent, a contractual "cost-of-living adjustment" automatically increases wages each year by the percentage change during the previous year in the consumer price index calculated by the Bureau of Labor Statistics. Such a contract provides a basis for taking into account an additional societal factor—price inflation—in estimating the worker's lost future earnings.

The second stage of the calculation requires the selection of an appropriate discount rate. Price inflation—or more precisely, anticipated price inflation—certainly affects market

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[22] At one time it was thought appropriate to distinguish between compensating a plaintiff "for the loss of time from his work which has actually occurred up to the time of trial" and compensating him "for the time which he will lose in [the] future." C. McCormick, Damages § 86 (1935). This suggested that estimated future earning capacity should be discounted to the date of trial, and a separate calculation should be performed for the estimated loss of earnings between injury and trial. *Id.*, §§ 86, 87. It is both easier and more precise to discount the entire lost stream of earnings back to the date of injury—the moment from which earning capacity was impaired. The plaintiff may then be awarded interest on that discounted sum for the period between injury and judgment, in order to ensure that the award when invested will still be able to replicate the lost stream. See *In re Air Crash Disaster Near Chicago, Illinois, on May 25, 1979*, 644 F. 2d 633, 641–646 (CA7 1981); 1 Speiser § 8:6, p. 723.

rates of return. If a lender knows that his loan is to be repaid a year later with dollars that are less valuable than those he has advanced, he will charge an interest rate that is high enough both to compensate him for the temporary use of the loan proceeds and also to make up for their shrinkage in value.[23]

At one time many courts incorporated inflation into only one stage of the calculation of the award for lost earnings. See, *e. g., Sleeman* v. *Chesapeake and Ohio R. Co.*, 414

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[23] The effect of price inflation on the discount rate may be less speculative than its effect on the lost stream of future income. The latter effect always requires a prediction of the future, for the existence of a contractual cost-of-living adjustment gives no guidance about how big that adjustment will be in some future year. However, whether the discount rate also turns on predictions of the future depends on how it is assumed that the worker will invest his award.

On the one hand, it might be assumed that at the time of the award the worker will invest in a mixture of safe short-term, medium-term, and long-term bonds, with one scheduled to mature each year of his expected work-life. In that event, by purchasing bonds immediately after judgment, the worker can be ensured whatever future stream of nominal income is predicted. Since all relevant effects of inflation on the market interest rate will have occurred at that time, future changes in the rate of price inflation will have no effect on the stream of income he receives. For recent commentaries on how an appropriate discount rate should be chosen under this assumption, see Jarrell & Pulsinelli, Obtaining the Ideal Discount Rate in Wrongful Death and Injury Litigation, 32 Defense L. J. 191 (1983); Fulmer & Geraghty, The Appropriate Discount Rate to Use in Estimating Financial Loss, 32 Federation Ins. Counsel Q. 263 (1982). See also *Doca* v. *Marina Mercante Nicaraguense, S. A.*, 634 F. 2d 30, 37, n. 8 (CA2 1980). On the other hand, it might be assumed that the worker will invest exclusively in safe short-term notes, reinvesting them at the new market rate whenever they mature. Future market rates would be quite important to such a worker. Predictions of what they will be would therefore also be relevant to the choice of an appropriate discount rate, in much the same way that they are always relevant to the first stage of the calculation. For a commentary choosing a discount rate on the basis of this assumption, see Sherman, Projection of Economic Loss: Inflation v. Present Value, 14 Creighton L. Rev. 723 (1981) (hereafter Sherman). We perceive no intrinsic reason to prefer one assumption over the other, but most "offset" analyses seem to adopt the latter. See n. 26, *infra*.

F. 2d 305 (CA6 1969); *Johnson* v. *Penrod Drilling Co.*, 510 F. 2d 234 (CA5 1975) (en banc). In estimating the lost stream of future earnings, they accepted evidence of both individual and societal factors that would tend to lead to wage increases even in an inflation-free economy, but required the plaintiff to prove that those factors were not influenced by predictions of future price inflation. See *Higginbotham* v. *Mobil Oil Corp.*, 545 F. 2d 422, 434–435 (CA5 1977). No increase was allowed for price inflation, on the theory that such predictions were unreliably speculative. See *Sleeman, supra,* at 308; *Penrod, supra,* at 240–241. In discounting the estimated lost stream of future income to present value, however, they applied the market interest rate. See *Blue* v. *Western R. of Alabama,* 469 F. 2d 487, 496–497 (CA5 1972).

The effect of these holdings was to deny the plaintiff the benefit of the impact of inflation on his future earnings, while giving the defendant the benefit of inflation's impact on the interest rate that is used to discount those earnings to present value. Although the plaintiff in such a situation could invest the proceeds of the litigation at an "inflated" rate of interest, the stream of income that he received provided him with only enough dollars to maintain his existing *nominal* income; it did not provide him with a stream comparable to what his lost wages would have been in an inflationary economy.[24] This inequity was assumed to have been minimal because of the relatively low rates of inflation.

In recent years, of course, inflation rates have not remained low. There is now a consensus among courts that

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[24] As Judge Posner has explained it:

"But if there is inflation it will affect wages as well as prices. Therefore to give Mrs. O'Shea $2318 today because that is the present value of $7200 10 years hence, computed at a discount rate—12 percent—that consists mainly of an allowance for anticipated inflation, is in fact to give her less than she would have been earning then if she was earning $7200 on the date of the accident, even if the only wage increases she would have received would have been those necessary to keep pace with inflation." *O'Shea* v. *Riverway Towing Co.*, 677 F. 2d 1194, 1199 (CA7 1982).

the prior inequity can no longer be tolerated. See, *e. g.*, *United States* v. *English*, 521 F. 2d 63, 75 (CA9 1975) ("While the administrative convenience of ignoring inflation has some appeal when inflation rates are low, to ignore inflation when the rates are high is to ignore economic reality"). There is no consensus at all, however, regarding what form an appropriate response should take. See generally Note, Future Inflation, Prospective Damages, and the Circuit Courts, 63 Va. L. Rev. 105 (1977).

Our sister common-law nations generally continue to adhere to the position that inflation is too speculative to be considered in estimating the lost stream of future earnings; they have sought to counteract the danger of systematically undercompensating plaintiffs by applying a discount rate that is below the current market rate. Nevertheless, they have each chosen different rates, applying slightly different economic theories. In England, Lord Diplock has suggested that it would be appropriate to allow for future inflation "in a rough and ready way" by discounting at a rate of 4½%. *Cookson* v. *Knowles*, [1979] A. C. 556, 565–573. He accepted that rate as roughly equivalent to the rates available "[i]n times of stable currency." *Id.*, at 571–572. See also *Mallett* v. *McMonagle*, [1970] A. C. 166. The Supreme Court of Canada has recommended discounting at a rate of 7%, a rate equal to market rates on long-term investments minus a government expert's prediction of the long-term rate of price inflation. *Andrews* v. *Grand & Toy Alberta Ltd.*, [1978] 2 S. C. R. 229, 83 D. L. R. 3d 452, 474. And in Australia, the High Court has adopted a 2% rate, on the theory that it represents a good approximation of the long-term "real interest rate." See *Pennant Hills Restaurants Pty. Ltd.* v. *Barrell Insurances Pty. Ltd.*, 55 A. L. J. R. 258 (1981); *id.*, at 260 (Barwick, C. J.); *id.*, at 262 (Gibbs, J.); *id.*, at 277 (Mason, J.); *id.*, at 280 (Wilson, J.).

In this country, some courts have taken the same "real interest rate" approach as Australia. See *Feldman* v. *Alle-*

gheny Airlines, Inc., 524 F. 2d, at 388 (1.5%); *Doca* v. *Marina Mercanti Nicaraguense, S. A.*, 634 F. 2d 30, 39–40 (CA2 1980) (2%, unless litigants prove otherwise). They have endorsed the economic theory suggesting that market interest rates include two components—an estimate of anticipated inflation, and a desired "real" rate of return on investment—and that the latter component is essentially constant over time.[25] They have concluded that the inflationary increase in the estimated lost stream of future earnings will therefore be perfectly "offset" by all but the "real" component of the market interest rate.[26]

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[25] In his dissenting opinion in *Pennant Hills Restaurant Pty. Ltd.* v. *Barrell Insurances Pty. Ltd.*, 55 A. L. J. R. 258, 266–267 (1981), Justice Stephen explained the "real interest rate" approach to discounting future earnings, in part, as follows:

"It rests upon the assumption that interest rates have two principal components: the market's own estimation of likely rates of inflation during the term of a particular fixed interest investment, and a 'real interest' component, being the rate of return which, in the absence of all inflation, a lender will demand and a borrower will be prepared to pay for the use of borrowed funds. It also relies upon the alleged economic fact that this 'real interest' rate, of about two per cent, will always be much the same and that fluctuations in nominal rates of interest are due to the other main component of interest rates, the inflationary expectation."

[26] What is meant by the "real interest rate" depends on how one expects the plaintiff to invest the award, see n. 23, *supra*. If one assumes that the injured worker will immediately invest in bonds having a variety of maturity dates, in order to ensure a particular stream of future payments, then the relevant "real interest rate" must be the difference between (1) an average of short-term, medium-term, and long-term market interest rates in a given year and (2) the average rate of price inflation in *subsequent* years (*i. e.*, during the terms of the investments). The only comprehensive analysis of this difference that has been called to our attention is in *Feldman* v. *Allegheny Airlines, Inc.*, 382 F. Supp. 1271, 1293–1295, 1306–1312 (Conn. 1974).

It appears more common for "real interest rate" approaches to rest on the assumption that the worker will invest in low-risk short-term securities and will reinvest frequently. *E. g.*, *O'Shea* v. *Riverway Towing Co.*, 677

Still other courts have preferred to continue relying on market interest rates. To avoid undercompensation, they have shown at least tentative willingness to permit evidence of what future price inflation will be in estimating the lost stream of future income. *Schmitt* v. *Jenkins Truck Lines, Inc.*, 170 N. W. 2d 632 (Iowa 1969); *Bach* v. *Penn Central Transp. Co.*, 502 F. 2d 1117, 1122 (CA6 1974); *Turcotte* v. *Ford Motor Co.*, 494 F. 2d 173, 186–187 (CA1 1974); *Huddell* v. *Levin*, 537 F. 2d 726 (CA3 1976); *United States* v. *English*, *supra*, at 74–76; *Ott* v. *Frank*, 202 Neb. 820, 277 N. W. 2d 251 (1979); *District of Columbia* v. *Barriteau*, 399 A. 2d 563, 566–569 (D. C. 1979). Cf. *Magill* v. *Westinghouse Electric Corp.*, 464 F. 2d 294, 301 (CA3 1972) (holding open possibility of establishing a factual basis for price inflation testimony); *Resner* v. *Northern Pacific R. Co.*, 161 Mont. 177, 505 P. 2d 86 (1973) (approving estimate of future wage inflation); *Taenzler* v. *Burlington Northern*, 608 F. 2d 796, 801 (CA8 1979) (allowing estimate of future wage inflation, but not of a specific rate of price inflation); *Steckler* v. *United States*, 549 F. 2d 1372 (CA10 1977) (same).

Within the past year, two Federal Courts of Appeals have decided to allow litigants a choice of methods. Sitting en banc, the Court of Appeals for the Fifth Circuit has overruled its prior decision in *Johnson* v. *Penrod Drilling Co.*, 510

F. 2d, at 1199. Under that assumption, the relevant real interest rate is the difference between the short-term market interest rate in a given year and the average rate of price inflation during that same year. Several studies appear to have been done to measure this difference. See Sherman 731–732; Carlson, Short-Term Interest Rates as Predictors of Inflation: Comment, 67 Am. Econ. Rev. 469 (1977); Gibson, Interest Rates and Inflationary Expectations: New Evidence, 62 Am. Econ. Rev. 854 (1972).

However one interprets the "real interest rate," there is a slight distortion introduced by netting out the two effects and discounting by the difference. See Comments, 49 U. Chi. L. Rev. 1003, 1017–1018, n. 66 (1982); Note, Future Inflation, Prospective Damages, and the Circuit Courts, 63 Va. L. Rev. 105, 111 (1977).

F. 2d 234 (1975), and held it acceptable either to exclude evidence of future price inflation and discount by a "real" interest rate, or to attempt to predict the effects of future price inflation on future wages and then discount by the market interest rate. *Culver* v. *Slater Boat Co.*, 688 F. 2d 280, 308–310 (1982).[27] A panel of the Court of Appeals for the Seventh Circuit has taken a substantially similar position. *O'Shea* v. *Riverway Towing Co.*, 677 F. 2d 1194, 1200 (1982).

Finally, some courts have applied a number of techniques that have loosely been termed "total offset" methods. What these methods have in common is that they presume that the ideal discount rate—the after-tax market interest rate on a safe investment—is (to a legally tolerable degree of precision) completely offset by certain elements in the ideal computation of the estimated lost stream of future income. They all assume that the effects of future price inflation on wages are part of what offsets the market interest rate. The methods differ, however, in their assumptions regarding which if any other elements in the first stage of the damages calculation contribute to the offset.

Beaulieu v. *Elliott*, 434 P. 2d 665 (Alaska 1967), is regarded as the seminal "total offset" case. The Supreme Court of Alaska ruled that in calculating an appropriate award for an injured worker's lost wages, no discount was to be applied. It held that the market interest rate was fully offset by two factors: price inflation and real wage inflation.

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[27] The Fifth Circuit recommended replacing the estimated stream of actual installments with a stream of installments representing the "average annual income." See 688 F. 2d, at 309. As we have noted, a worker does not generally receive the same wage each year. If, as an accurate estimate would normally show, the estimated wages increase steadily, then averaging will raise the estimate for the early years and lower it for the later years. Since the early years are discounted less than the later years, this step will necessarily increase the size of the award, providing plaintiffs with an unjustified windfall. Cf. *Turcotte* v. *Ford Motor Co.*, 494 F. 2d 173, 186, n. 20 (CA1 1974).

Id., at 671–672. Significantly, the court did not need to distinguish between the two types of sources of real wage inflation—individual and societal—in order to resolve the case before it.[28] It simply observed:

> "It is a matter of common experience that as one progresses in his chosen occupation or profession he is likely to increase his earnings as the years pass by. In nearly any occupation a wage earner can reasonably expect to receive wage increases from time to time. This factor is generally not taken into account when loss of future wages is determined, because there is no definite way of determining at the time of trial what wage increases the plaintiff may expect to receive in the years to come. However, this factor may be taken into account to some extent when considered to be an offsetting factor to the result reached when future earnings are not reduced to present value." *Id.*, at 672.

Thus, the market interest rate was deemed to be offset by price inflation and all other sources of future wage increases.

In *State* v. *Guinn*, 555 P. 2d 530 (Alaska 1976), the *Beaulieu* approach was refined slightly. In that case, the plaintiff had offered evidence of "small, automatic increases in the wage rate keyed to the employee's length of service with the company," 555 P. 2d, at 545, and the trial court had included those increases in the estimated lost stream of future income but had not discounted. It held that this type of "certain and predictable" individual raise was not the type of wage increase that offsets the failure to discount to present value. Thus, the market interest rate was deemed to be offset by price inflation, societal sources of wage inflation, and individual sources of wage inflation that are not "certain and predictable." *Id.*, at 546–547. See also *Gowdy* v. *United States*, 271 F. Supp. 733 (WD Mich. 1967) (price inflation and

[28] See *supra*, at 535–536.

societal sources of wage inflation), rev'd on other grounds, 412 F. 2d 525 (CA6 1969); *Pierce* v. *New York Central R. Co.*, 304 F. Supp. 44 (WD Mich. 1969) (same).

Kaczkowski v. *Bolubasz*, 491 Pa. 561, 421 A. 2d 1027 (1980), took still a third approach. The Pennsylvania Supreme Court followed the approach of the District Court in *Feldman* v. *Allegheny Airlines, Inc.*, 382 F. Supp. 1271 (Conn. 1974), and the Court of Appeals for the Fifth Circuit in *Higginbotham* v. *Mobil Oil Corp.*, 545 F. 2d 422 (1977), in concluding that the plaintiff could introduce all manner of evidence bearing on likely sources—both individual and societal—of future wage growth, except for predictions of price inflation. 491 Pa., at 579–580, 421 A. 2d, at 1036–1037. However, it rejected those courts' conclusion that the resulting estimated lost stream of future income should be discounted by a "real interest rate." Rather, it deemed the market interest rate to be offset by future price inflation. *Id.*, at 580–582, 421 A. 2d, at 1037–1038. See also *Schnebly* v. *Baker*, 217 N. W. 2d 708, 727 (Iowa 1974); *Freeport Sulphur Co.* v. *S/S Hermosa*, 526 F. 2d 300, 310–312 (CA5 1976) (Wisdom, J., concurring).

The litigants and the *amici* in this case urge us to select one of the many rules that have been proposed and establish it for all time as the exclusive method in all federal trials for calculating an award for lost earnings in an inflationary economy. We are not persuaded, however, that such an approach is warranted. Accord, *Cookson* v. *Knowles*, [1979] A. C., at 574 (Lord Salmon). For our review of the foregoing cases leads us to draw three conclusions. First, by its very nature the calculation of an award for lost earnings must be a rough approximation. Because the lost stream can never be predicted with complete confidence, any lump sum represents only a "rough and ready" effort to put the plaintiff in the position he would have been in had he not been injured. Second, sustained price inflation can make the award substantially less precise. Inflation's current magnitude and unpredictability create a substantial risk that the damages award will prove to have little relation to the lost wages it purports to replace. Third, the question of lost earnings can arise in many different contexts. In some sectors of the economy, it is far easier to assemble evidence of an individual's most likely career path than in others.

These conclusions all counsel hesitation. Having surveyed the multitude of options available, we will do no more than is necessary to resolve the case before us. We limit our attention to suits under § 5(b) of the Act, noting that Congress has provided generally for an award of damages but has not given specific guidance regarding how they are to be calculated. Within that narrow context, we shall define the general boundaries within which a particular award will be considered legally acceptable.

III

The Court of Appeals correctly noted that respondent's cause of action "is rooted in federal maritime law." *Pope & Talbot, Inc.* v. *Hawn*, 346 U. S. 406, 409 (1953). See also H. R. Rep. No. 92-1441 (1972). The fact that Pennsylvania has adopted the total offset rule for all negligence cases in that forum is therefore not of controlling importance in this case. Moreover, the reasons which may support the adoption of the rule for a State's entire judicial system—for a broad class of cases encompassing a variety of claims affecting a number of different industries and occupations—are not necessarily applicable to the special class of workers covered by this Act.

In calculating an award for a longshoreman's lost earnings caused by the negligence of a vessel, the discount rate should be chosen on the basis of the factors that are used to estimate the lost stream of future earnings. If the trier of fact relies on a specific forecast of the future rate of price inflation, and if the estimated lost stream of future earnings is calculated to include price inflation along with individual factors and other societal factors, then the proper discount rate would be the after-tax market interest rate.[29] But since specific forecasts of future price inflation remain too unreliable to be useful in many cases, it will normally be a costly and ultimately unproductive waste of longshoremen's resources to make such forecasts the centerpiece of litigation under § 5(b). As Judge Newman has warned: "The average accident trial should not be converted into a graduate seminar on economic forecasting." *Doca* v. *Marina Mercante Nicaraguense, S. A.*, 634 F. 2d, at 39. For that reason, both plaintiffs and trial courts should be discouraged from pursuing that approach.

On the other hand, if forecasts of future price inflation are not used, it is necessary to choose an appropriate below-market discount rate. As long as inflation continues, one must ask how much should be "offset" against the market rate. Once again, that amount should be chosen on the basis of the same factors that are used to estimate the lost stream of future earnings. If full account is taken of the individual and societal factors (excepting price inflation) that can be expected to have resulted in wage increases, then all that should be set off against the market interest rate is an estimate of future price inflation. This would result in one of the "real interest rate" approaches described above. Although we find the economic evidence distinctly inconclusive regarding an essential premise of those approaches,[30] we do not be-

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[29] See n. 23, *supra*.

[30] The key premise is that the real interest rate is stable over time. See n. 25, *supra*. It is obviously not perfectly stable, but whether it is even relatively stable is hotly disputed among economists. See the sources cited in *Doca*, 634 F. 2d, at 39, n. 10. In his classic work, Irving Fisher argued that the rate is not stable because changes in expectations of inflation (the factor that influences market interest rates) lag behind changes in inflation itself. I. Fisher, The Theory of Interest 43 (1930). He noted that the "real rate of interest in the United States from March to April, 1917, fell below minus 70 percent!" *Id.*, at 44. Consider also the more recent observations of Justice Stephen of the High Court of Australia:

"Past Australian economic experience appears to provide little support for the concept of a relatively constant rate of 'real interest.' Year by year lieve a trial court adopting such an approach in a suit under § 5(b) should be reversed if it adopts a rate between 1 and 3% and explains its choice.

There may be a sound economic argument for even further setoffs. In 1976, Professor Carlson of the Purdue University Economics Department wrote an article in the American Bar Association Journal contending that in the long run the societal factors excepting price inflation—largely productivity gains—match (or even slightly exceed) the "real interest rate." Carlson, Economic Analysis v. Courtroom Controversy, 62 A. B. A. J. 628 (1976). He thus recommended that the estimated lost stream of future wages be calculated without considering either price inflation or societal productivity gains. All that would be considered would be individual seniority and promotion gains. If this were done, he concluded that the entire market interest rate, including both inflation

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a figure for 'real interest' can of course be calculated, simply by subtracting from nominal interest rates the rate of inflation. But these figures are no more than a series of numbers bearing no resemblance to any relatively constant rate of interest which lenders are supposed to demand and borrowers to pay after allowing for estimated inflation. If official statistics for the past twelve calendar years are consulted, the Reserve Bank of Australia's Statistical Bulletins supply interest rates on two-year Australian government bonds (non-rebatable) and the O. E. C. D. Economic Outlook—July 1980, p. 105 and p. 143, supplies annual percentage changes in consumer prices, which gives a measure of inflation. The difference figure year by year, which should represent the 'real interest' rate, averages out at a negative average rate of interest of −1.46, the widest fluctuations found in particular years being a positive rate of 2.58 per cent and a negative rate of −6.61 per cent. Nothing resembling a relatively constant positive rate of 2 per cent–3 per cent emerges. An equally random series of numbers, showing no steady rate of 'real interest', appears as Table 9.1 in the recent Interim Report of the Campbell Committee of Inquiry (Australian Government Publication Service—1980). For the period of thirty years which that Table covers, from 1950 to 1979, the average 'implicit real interest rate' is a negative rate of −.7 per cent, with 4 per cent as the greatest positive rate in any year and −20.2 per cent as the greatest negative annual rate." *Pennant Hills Restaurants Pty. Ltd.*, 55 A. L. J. R., at 267.

and the real interest rate, would be more than adequately offset.

Although such an approach has the virtue of simplicity and may even be economically precise,[31] we cannot at this time agree with the Court of Appeals for the Third Circuit that its use is mandatory in the federal courts. Naturally, Congress could require it if it chose to do so. And nothing prevents parties interested in keeping litigation costs under control from stipulating to its use before trial.[32] But we are not pre-

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[31] We note that a substantial body of literature suggests that the Carlson rule might even *under*compensate some plaintiffs. See S. Speiser, Recovery for Wrongful Death, Economic Handbook 36–37 (1970) (average interest rate 1% below average rate of wage growth); Formuzis & O'Donnell, Inflation and the Valuation of Future Economic Losses, 38 Mont. L. Rev. 297, 299 (1977) (interest rate 1.4% below rate of wage growth); Franz, Simplifying Future Lost Earnings, 13 Trial 34 (Aug. 1977) (rate of wage growth exceeds interest rate by over 1% on average); Coyne, Present Value of Future Earnings: A Sensible Alternative to Simplistic Methodologies, 49 Ins. Counsel J. 25, 26 (1982) (noting that Carlson's own data suggest that rate of wage growth exceeds interest rate by over 1.6%, and recommending a more individualized approach). See generally Note, 57 St. John's L. Rev. 316, 342–345 (1983). But see Comments, 49 U. Chi. L. Rev. 1003, 1023, and n. 87 (1982) (noting "apparent congruence" between Government projections of 2% average annual productivity growth and real interest rate, and concluding that total offset is accurate).

It is also interesting that in *O'Shea* v. *Riverway Towing Co.*, 677 F. 2d 1194 (CA7 1982), Judge Posner stated that the real interest rate varies between 1 and 3%, *id.*, at 1199, and that "[i]t would not be outlandish to assume that even if there were no inflation, Mrs. O'Shea's wages would have risen by three percent a year," *id.*, at 1200. Depending on how much of Judge Posner's estimated wage inflation for Mrs. O'Shea was due to individual factors (excluded from a total offset computation), his comments suggest that a total offset approach in that case could have meant overdiscounting by as much as 2%.

[32] If parties agree in advance to use the Carlson method, all that would be needed would be a table of the after-tax values of present salaries and fringe benefits for different positions and levels of seniority ("steps") within an industry. Presumably this would be a matter for stipulation before trial, as well. The trier of fact would be instructed to determine how

pared to impose it on unwilling litigants, for we have not been given sufficient data to judge how closely the national patterns of wage growth are likely to reflect the patterns within any given industry. The Legislative Branch of the Federal Government is far better equipped than we are to perform a comprehensive economic analysis and to fashion the proper general rule.

As a result, the judgment below must be set aside. In performing its damages calculation, the trial court applied the theory of *Kaczkowski* v. *Bolubasz*, 491 Pa. 561, 421 A. 2d 1027 (1980), as a mandatory federal rule of decision, even though the petitioner had insisted that if compensation was to be awarded, it "must be reduced to its present worth." App. 60. Moreover, this approach seems to have colored the trial court's evaluation of the relevant evidence. At one point, the court noted that respondent had offered a computation of his estimated wages from the date of the accident until his presumed date of retirement, including projected cost-of-living adjustments. It stated: "We do not disagree with these projections, but feel they are inappropriate in view of the holding in *Kaczkowski*." *Id.*, at 74. Later in its opinion, however, the court declared: "We do not believe that there was sufficient evidence to establish a basis for estimating increased future productivity for the plaintiff, and therefore we will not inject such a factor in this award." *Id.*, at 76.

On remand, the decision on whether to reopen the record should be left to the sound discretion of the trial court. It bears mention that the present record already gives reason to believe a fair award may be more confidently expected in

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many years the injured worker would have spent at each step. It would multiply the number of years the worker would spend at each step by the current net value of each step (as shown on the table) and then add up the results. The trier of fact would be spared the need to cope with inflation estimates, productivity trends, and present value tables.

this case than in many. The employment practices in the longshoring industry appear relatively stable and predictable. The parties seem to have had no difficulty in arriving at the period of respondent's future work expectancy, or in predicting the character of the work that he would have been performing during that entire period if he had not been injured. Moreover, the record discloses that respondent's wages were determined by a collective-bargaining agreement that explicitly provided for "cost of living" increases, *id.*, at 310, and that recent company history also included a "general" increase and a "job class increment increase." Although the trial court deemed the latter increases irrelevant during its first review because it felt legally compelled to assume they would offset any real interest rate, further study of them on remand will allow the court to determine whether that assumption should be made in this case.

IV

We do not suggest that the trial judge should embark on a search for "delusive exactness."[33] It is perfectly obvious that the most detailed inquiry can at best produce an approximate result.[34] And one cannot ignore the fact that in many instances the award for impaired earning capacity may be overshadowed by a highly impressionistic award for pain and suffering.[35] But we are satisfied that whatever rate the District Court may choose to discount the estimated stream of

[33] Judge Friendly perceived the relevance of Justice Holmes' phrase in this context. See *Feldman* v. *Allegheny Airlines, Inc.*, 524 F. 2d 384, 392 (CA2 1975) (Friendly, J., concurring *dubitante*), quoting *Truax* v. *Corrigan*, 257 U. S. 312, 342 (1921) (Holmes, J., dissenting).

[34] Throughout this opinion we have noted the many rough approximations that are essential under any manageable approach to an award for lost earnings. See *supra*, at 533–544, and nn. 11, 25, 26, 30.

[35] It has been estimated that awards for pain and suffering account for 72% of damages in personal injury litigation. 6 Am. Jur. Trials, Predicting Personal Injury Verdicts and Damages § 24 (1967).

future earnings, it must make a deliberate choice, rather than assuming that it is bound by a rule of state law.

The judgment of the Court of Appeals is vacated, and the case is remanded for further proceedings consistent with this opinion.

It is so ordered.